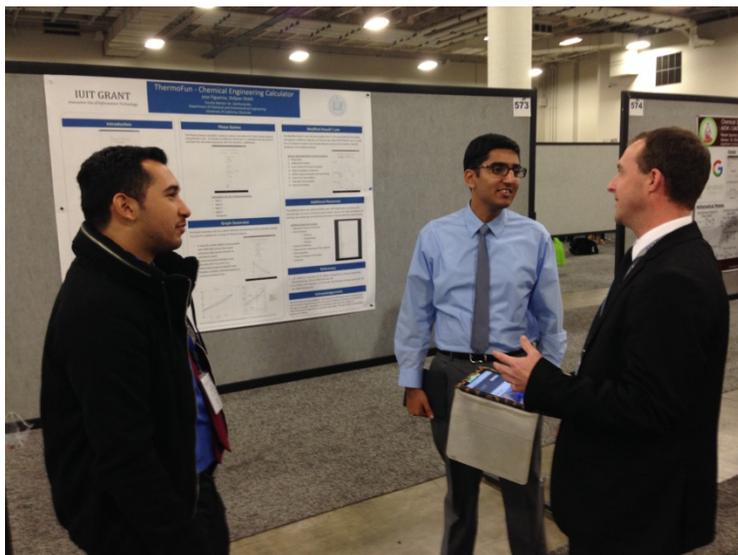


### **2015 AIChE/CACHE Mobile Device App Competition**

The 2015 AIChE/CACHE Mobile Device App Competition was held at the AIChE Annual meeting in Salt Lake City, Utah during the Student Poster Competition on November 9, 2015. At this meeting students presented posters explaining the features of their App and then gave a demonstration of their App on a mobile device platform. The winners in this year's competition covered both categories of the Best Mobile Device App and the Best Mobile Device App that has a major focus on aspects of safety. Both winners designed their apps to run on the Android platform.

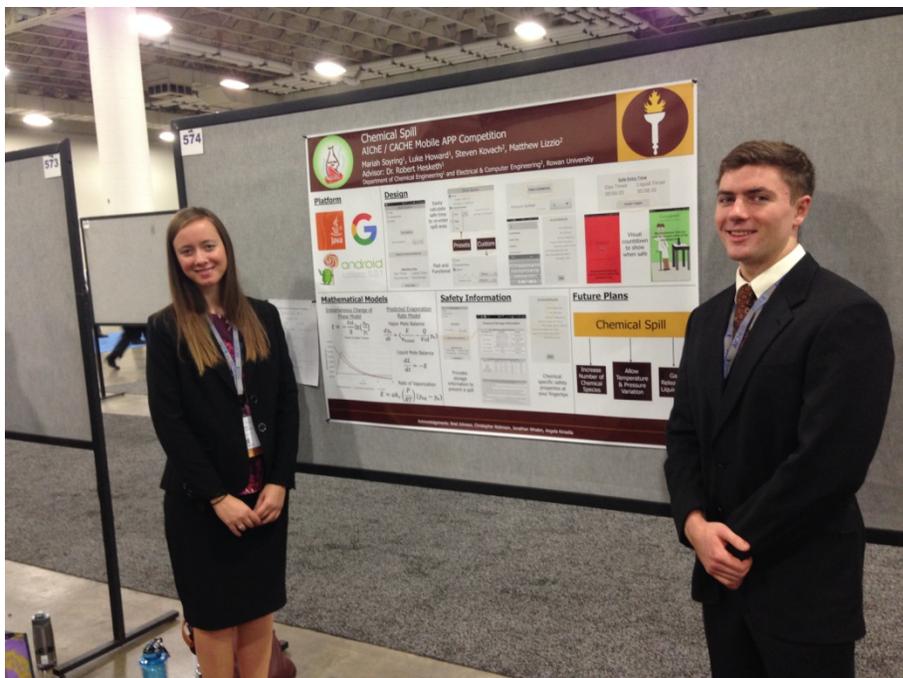
The award for the Best App was given to UC Riverside for the App titled ThermoCalc. The developers were Jose Figueroa and Shilpan Sheth. The app consists of a mobile/tablet application that will enhance the learning of Thermodynamics to students. This App has built in functions that solve ideal and modified Raoult's Law problems, as well as graph phase diagrams and solve chemical equilibrium problems. In addition it contained a database of thermodynamic data and contained a unit conversions routine.



**UC Riverside ThermoCalc demonstrated by Jose Figueroa and Shilpan Sheth**

The Best Mobile Device App that has a major focus on aspects of safety was won by Rowan University for an App titled ChemSpill. The developers of this App consisted of three chemical engineering students, three electrical & computer engineering, and one civil and environmental engineering student. The chemical engineering students are Mariah Soyring, Luke Howard, Christopher Robinson; the electrical & computer engineering students are Steven Kovach, Matthew Lizzio, Jonathan Whalen, and the civil and environmental engineering student is Angela Kinsella.

The ChemSpill APP uses data from the MSDS sheets, NFPA 45, and OSHA to analyze hazardous spills and predict when it is safe to use the space where the chemical spilled. In industry, this is important for time-sensitive experiments and preventing future chemical spills. A room is deemed safe once it reaches one-quarter the chemical's Lower Flammability Limit (LFL) and Permissible Exposure Limit (PEL). The code uses a complex model to perform simultaneous mass balances on the liquid and gas phases of the chemical, while assuming a constant rate of evaporation. To perform the calculation, the user must indicate the room specifications, the chemical's name and amount spilled in the App. The App timer then counts down and notifies the user when the area is safe again to enter. The App also provides an information sheet on each chemical for other quick reference purposes. In the future, developers plan to expand the chemical database, include more presets to increase the efficiency of using the App, and add a temperature function to increase the situational versatility of the App. Ultimately, this App provides a portable NFPA 45 database and OSHA database while also performing safety calculations to determine the safe time to use a hazardous space. This encourages chemical hazards awareness, emergency preparedness, and saves time in the laboratory workplace.



Rowan's ChemSpill App demonstrated by Mariah Soyring, Luke Howard

The 2016 competition will be held at the 2016 AIChE Annual Meeting on the Monday Poster Competition on 11/14/2016 in San Francisco, CA. Student teams have until 10/31/2016 to enter this competition. For more details go to

<http://www.aiche.org/community/awards/student-aichecke-national-mobile-device-app-competition-2016>